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COMMANDANT
US ARMY CHEMICAL SCHOOL
ATTN: ATSN-CMZ
401 ENGINEER LOOP, SIBERT WING,
FORT LEONARD WOOD, MO 65473-8926

DEPARTMENT OF THE NAVY
DEPUTY CHIEF OF NAVAL OPERATIONS
SURFACE WARFARE DIVISION (N86)
THE PENTAGON, WASHINGTON, DC 20310-0103



DEPARTMENT OF THE NAVY
DEPUTY COMMANDING GENERAL
U.S. MARINE CORPS
COMBAT DEVELOPMENT COMMAND
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QUANTICO, VA 22134-5001

DEPARTMENT OF THE AIR FORCE
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THE PENTAGON
WASHINGTON, DC 20130-1260

JOINT SERVICE INTEGRATION GROUP
Fort Leonard Wood, MO 65473-8926

ATSN-CMZ-JS

22 Feb 2001

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Promulgation of the Final Operational Requirements Document (ORD) For the Joint Warning and Reporting Network.

1. References:

- a. Department of Defense Directive 5000.2, 15 Mar 96, Defense Acquisition.
- b. Department of Defense regulation 5000.2R, Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information Systems (MAIS) Acquisition Programs.
- c. Joint Service Integration Group Standard of Operating Procedures. Annex A, Operational Requirements Document Process.

2. The approved JWARN ORD is forwarded for your reference. Addressees are responsible for internal distribution of the JWARN ORD. The following information applies to this document:

- a. System Designation: Acquisition Category III.
- b. Requirement Lead/POC; USMC/CW05 Randy Himes, MCCDC, Quantico, VA
(703) 784-6210 fax ext. 2532

3. The JSIG point of contact is Rick Turville (703) 413-7841. Fax extension is 8880.

FOR THE CHAIRMAN:

A handwritten signature in black ink, reading "Leslie R. Koch".

LESLIE R. KOCH
Lieutenant Colonel, USAF
Director, JSIG Executive Staff

Encl

1. Final JWARN ORD

DISTRIBUTION:

United States Army Chemical School, ATSN-CM-DCD (Mr. Bazzetta), 401 Engineer Loop,

Suite 1029, Fort Leonard Wood, MO 65473-8926

Director, Ship Safety and Survivability, (N76DC), ATTN: CDR Tom O'Donnell, 2000 Navy, The Pentagon, Washington, D.C. 20350-2000

Deputy Commanding General, U.S. Marine Corps Combat Development Command, ATTN:

C443 (CWO5 Himes), Quantico, VA 22134-5021

USSOSOC, ATTN: SOOP-G (LTC Schwalm), 7701 Tampa Point Blvd, MacDill AFB, FL 33621-5323

Headquarters, U.S. Air Force, ATTN: AF/ILE (Maj McLane), 1260 AF, Pentagon, Washington, D.C. 20310

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Defense Threat Reduction Agency (DTRA/CB), ATTN: MAJ Gladney, 8725 John J. Kingman

Road MS, Fort Belvoir, VA 22060-6201

Chairman, Joint Service Materiel Group, ATTN: AMCCB (Mr. McKivrigan), Aberdeen Proving Ground, MD 21010-5423

Office of the Deputy Chief of Staff for Operations and Plans, ATTN: DAMO-FDB (COL Izzo), The Pentagon, Washington, D.C. 20310-5000

Commander, AMEDDC&S, DCDD, ATTN: MCCS-FCC (Dr. Harrison), 1400 Grayson Street, Fort Sam Houston, TX 78234-6175

Office of the Surgeon General, ATTN: LTC Schnelle, Skyline #6, Room 668, 5109 Leesburg

Pike, Falls Church, VA 22041

Joint Program Manager, Biological Defense, ATTN: SFAE-BD (LTC Buley), 5201 Leesburg Pike, Suite 1200, Falls Church, VA 22041

Joint Chiefs of Staff J-5, ATTN: COL DePaz, Nuc and CP Division, Room 2D938, The Pentagon, Washington, D.C. 20310-5000

Commander, USASOC, ATTN: AORI-SI, Fort Bragg, NC 28307

Joint Chiefs of Staff J-8, ATTN: LTC McClellan, Requirements & Acquisition Division, Room

1D963, Pentagon, Washington, DC 20318-8000

Headquarters, ACC/CEXX, 129 Andrews St, Suite 102, ATTN: CMSgt Runnels, Langley AFB, VA 23665-2769



UNITED STATES MARINE CORPS
MARINE CORPS COMBAT DEVELOPMENT COMMAND
QUANTICO, VIRGINIA 22134-5001

IN REPLY REFER TO:

3900
C 441
29 JAN 2001


From: Commanding General, Marine Corps Combat Development
Command, 3300 Russell Road, Quantico, Virginia
22134-5021 (C 441)

Subj: OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR A NUCLEAR,
BIOLOGICAL, AND CHEMICAL (NBC) JOINT WARNING AND REPORTING
NETWORK (JWARN) (NO. NBC 1.15); CHANGE 1

Ref: (a) CJCSI 3170.01A

Encl: (1) Operational Requirements Document (ORD) for a Nuclear,
Biological, and Chemical (NBC) Joint Warning and
Reporting Network (JWARN) (NO. NBC 1.15); Change 1

1. Purpose. To publish the approved change to the basic ORD for
a Nuclear, Biological, and Chemical (NBC) Joint Warning and
Reporting Network (JWARN) (NO. NBC 1.15).
2. Action. Per the reference, replace the basic ORD for JWARN
with the enclosure.
3. Filing Instructions. This change transmittal will be filed
immediately following the signature page of the basic ORD.
4. Point of Contact. The Marine Corps point of contact for this
requirement is the Ground Combat Element Branch, Equipment
Requirements Division, Marine Corps Combat Development Command,
commercial (703) 784-6210 or DSN 278-6210.


R. R. LOGAN
By direction

Distribution:
See attached

DISTRIBUTION

Marine Corps

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MCLNO, NAWCTSD, 12350 Research Parkway, (11M) Orlando,
FL 32826-3275
MC Program Department, Naval Warfare Assessment Station,
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CA 92028-3187
Dir, MCOTEA, 3035 Barnett Avenue, Quantico, VA 22134-5014

Navy

Deputy Chief of Naval Operations (Code N8), RM 4A530, 2000
Navy Pentagon, Washington, DC 20350-2000
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Room 802) Arlington, VA 22244-5114

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Headquarters, USAF (XORPD), 1480 Air Force Pentagon,
Washington, DC 20330-1480

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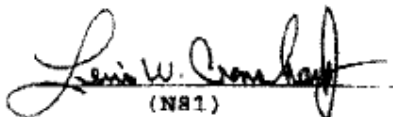
OPERATIONAL REQUIREMENTS DOCUMENT
FOR
JOINT WARNING AND REPORTING SYSTEM (JWARN)

Potential ACAT III

ENDORSED:

OBTAINED	10/07/99
(N091)	(DATE)
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FINAL COORDINATION AND PROCESSING


(N81)

12/20/99
(DATE)

OPERATIONAL REQUIREMENTS DOCUMENT

Serial Number: 542-86-99

FOR

JOINT WARNING AND REPORTING NETWORK
(JWARN)

VALIDATED AND APPROVED


(NS)

12/29/79
(DATE)

OPTIONAL FORM 86 (7-80)

FAX TRANSMITTAL

To	Mike Krzaska	PI
Dep./Agency		Phd
File #	604-6932	Max 3
NSN 7540-01 317 1366		FORM 101



**DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC**

MEMORANDUM FOR JOINT SERVICE INTEGRATED GROUP

FROM: HQ USAF/ILEX
1260 Air Force Pentagon
Washington DC 20330-1260

SUBJECT: Final Operational Requirement Document for a Nuclear, Biological, and Chemical (NBC) Joint Warning and Reporting Network (JWARN) MSIII Revision review

The Air Force has reviewed the Final JWARN ORD Revision. It accurately reflects Air Force needs with the exception of those concerns listed in Attachment 1. Suggestions and recommendations are offered for inclusion in the next version.

If you have any questions, my Action Officer is John Maxey, HQ USAF/ILEXR, (703) 604-0769.

A handwritten signature in black ink, reading "Timothy A. Byers", is positioned above the typed name.

**TIMOTHY A. BYERS, Colonel, USAF
Chief, Readiness & Work Force Management
Division
DCS/Installations & Logistics**

Attachments:

1. Recommendations for Inclusion into the Final JWARN ORD
2. Final Operational Requirement Document for a Nuclear, Biological, and Chemical (NBC) Joint Warning and Reporting Network (JWARN) MSIII Revision

cc:

USAF/ILMY/XORD
HQ ACC/CEX/DRMC/SGX



DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND
FORT MONROE, VIRGINIA 23061-6000

REPLY TO
ATTENTION OF

ATCD-SN (70)

24 Apr 99

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Change 1 to Approved Operational Requirements Document (ORD) for the Joint Warning and Reporting Network

1. References:

- a. Department of Defense Directive 5000.1, 15 Mar 96, Defense Acquisition.
- b. Department of Defense Regulation 5000.2R, 15 Mar 96, Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information Systems (MAIS) Acquisition Programs.
- c. Army Regulation 71-9, 30 Apr 97, Materiel Requirements.
- d. Training and Doctrine Command Pamphlet 71-9, 1 Aug 98, Requirements Determination.

2. The approved subject ORD at enclosure is forwarded for your action/information as appropriate. The following information applies to this document:

- a. System Designation: Acquisition Category: ACAT III.
- b. Materiel Developer: Joint Service Materiel Group (JSMG).
- c. Combat Developer: U.S. Army Chemical School (USACMLS).
- d. Trainer: TRADOC.
- e. Logistician: U.S. Army Materiel Command.
- f. Operational Tester: U.S. Army Operational Test and Evaluation Command.
- g. Catalog of Approved Requirements Documents Reference Number: 12006.


ATCD-SN

SUBJECT: Change 1 to Approved Operational Requirements Document
(ORD) for the Joint Warning and Reporting Network (JWARN)

3. The HQ TRADOC POC is CPT(P) Farmer, DSN 680-4412, E-mail
address: farmern@monroe.army.mil, and data fax DSN 680-2520.

FOR THE COMMANDER:

Encl


ALLAN M. RESNICK
Assistant Deputy Chief of Staff
for Combat Developments

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(CONT)

ATCD-SN
SUBJECT: Revised Operational Requirements Document (ORD) for the
Joint Warning and Reporting Network (JWARN) Milestone III Update

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DIRECTOR

ARL (AMSRL-CP/AMSRL-SL-E/AMSRL-HR-S/AMSRL-MA/AMSRL-BE/
AMSRL-DD-SS/AMSRL-EP-C)

FINAL
OPERATIONAL REQUIREMENT DOCUMENT
FOR A
NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC)
JOINT WARNING AND REPORTING NETWORK (JWARN)
(JTD J1-001-III) MSIII REVISION
27 July 99

1. General Description of Operational Capability.

a. Overall Mission Area. The requirement exists for a near real-time operational capability for Joint Forces to report, analyze and disseminate Nuclear, Biological, and Chemical (NBC) agent detection, identification, location, and warning information. JWARN will enable warfighters to respond to an NBC attack in a more timely manner.

(1) This operational capability will support Office of the Under Secretary of Defense for (Acquisition and Technology) mission areas 210, Land Warfare; 215, Land Warfare Support; 220, Air Warfare; 225, Air Warfare Support; 230, Naval Warfare; 235, Naval Warfare Support; 260, Mobility; and 276, Defensive Chemical and Biological Systems.

(2) For the Army this need is identified in Chapter 3 of Combat Support NBC Mission Area Analysis (MAA), deficiencies 1-4 and 6, Chapter 9 of the Combat Support (Heavy) MAA, tasks 2.1.7 and 2.2.5, and the Army Aviation MAA, deficiency 19 (NBC detection/sensing capabilities). This requirement is identified in Air Force Agile Combat Support Mission Area Plan (MAP) Infrastructure Need #I7. This requirement is addressed in the Marine Corps Master Plan dated 8 October 1997, Required Operational Capability (ROC)-6 and 18.

b. Type of System Proposed. JWARN will provide Joint Forces with an integrated comprehensive analysis and response capability to minimize the effects of hostile NBC attacks or accident/incidents, environmental hazards, or hazards from Toxic Industrial Material (TIM). The system will consist of hardware, software, and connectivity with Command, Control, Communications, Computers, Intelligence, and Information (C⁴I²) systems and remote detectors/sensors. It will provide the operational capability to employ NBC warning technology which will collect, analyze, identify, locate, report, and disseminate NBC threats and environmental threats and TIM. JWARN will be compatible and integrated with Joint/Service C⁴I² systems, the Defense Medical Surveillance System (DMSS) and networks/broadcasts.

c. Operational Concept. The JWARN will be located in Command and Control Centers at the appropriate level defined in service specific and/or SOCOM annexes and employed by NBC defense specialists and other designated personnel. It will transfer data automatically from and to the actual detector/sensor and provide commanders, units, and C⁴I² systems with analyzed data for decisions for disseminating warnings down to the lowest level of the battlefield. It will provide additional data

processing, production of plans and reports, and access to specific NBC information to improve the efficiency of limited NBC personnel assets.

d. Support Concept. All maintenance support will be based on individual service support management concepts unless a Joint concept at one or more levels is more cost effective and practical. Support concepts will be outlined in the Joint Logistics Support Plan (JLSP).

e. Mission Needs Statement Summary. This Operational Requirement Document (ORD) is associated with a Joint DoD Mission Need Statement for NBC Defense, dated 16 July 1999, and supported by Marine Corps Mission Need Statement (MNS) dated 6 August 1992 and an Operational Requirement Document (ORD) with change 1 (NO. NBC 1.15) dated 5 December 1995 for An Automated Nuclear, Biological, and Chemical Hazard Information and Warning (NBC HAZWARN) System, a U.S. Army approved ORD for an Automated NBC Information System (ANBACIS) dated 9 November 1992, a U.S. Air Force SON 004-85, Sustained Operations in a Chemical/Biological Environment (SECRET), Navy MNS for Naval Aviation Chemical and Biological Warfare Survivability (NO MO71-88-96), and with joint service and multinational interoperability for predicting radiological, biological, and chemical hazard propagation.

2. Threat

a. Threat to be countered. Recent intelligence documents indicate that active Nuclear, Biological or Chemical (NBC) warfare programs exist in over twenty countries. Many of the programs have led to the production of stockpiles of agents and weapons, and more are expected to achieve that status early in the 21st century. Countries with NBC programs will have a variety of NBC compatible weapon systems and dissemination devices, including tactical ballistic missiles. It is assessed that in almost every geographic region, U.S. Forces must expect adversaries to be capable of delivering one or more types of weapons of mass destruction into the area of operations. The downwind hazard to personnel is a common result of the use of NBC weapons and the accidental or deliberate release of Toxic Industrial Materials (TIM). This is especially true of biological agents and radiological fallout. Forces occupying areas surrounding high priority targets and certain industrial sites may be vulnerable to NBC contamination. The potential NBC threat also extends to transitional groups such as terrorists, criminals or factions in civil wars. Forces engaged in peacekeeping and Operation Other Than War (OOTW), may be at risk of contamination even if they are not deliberately targeted. This threat is based on: DIA document Threat Environment Projection: Chemical and Biological Warfare 2000-2025; An Assessment of Global Confirmed and Suspected Chemical and Biological Warfare Programs (WSSIC-91-1004 CX); and Biological Warfare Capabilities of the Middle East (Defense Intelligence Agency DST-16102-128-8980); Worldwide Chemical Agent Threat: Current and Projected (U) (NGIC-1671-655-95); System Threat Assessment Report (STAR) Biological Warfare Medical Defense Products Program (U); Environmental Projection, Nuclear Proliferators, 1996-2016 (U), (PC-1650-19-96); and Capstone System Threat Assessment (STAR) Chemical and Biological Warfare Defense Systems—Non-Medical, dated 2 Jun 97.

b. System Vulnerability. As with any electronic system, JWARN is vulnerable to the effects of Electro-Magnetic Interference (EMI) and electromagnetic effects from nuclear, advanced technology and electronic warfare weapons, and power interruptions. Although not a primary target, the JWARN is a collateral target vulnerable to a broad range of threat weapons systems, including ground maneuver forces, missile and artillery fire, and electronic warfare. The potential large use of computers links and nodes makes this system vulnerable to Information Warfare (IW). Use of Commercial-Off-The-Shelf (COTS) equipment increases this potential. IW threats are included in the following documents: "Information Warfare Threats to Automated Information Systems Threat Environment Description," DST-2660F210-96, "Threat Assessment for GCCS (U)" dated 31 July 1996, and "C3 Threat Assessment," ONI-TA-009-96, September 1996, and "Navy Tactical Electronic Support/Electronic Attack Threat Assessment," ONI-TA-014-96, December 1996.

3. Shortcomings of Existing Systems. Currently, the majority of NBC agent detectors and alarms operate as independent units. When an NBC attack is detected, the alarm is heard only by those personnel in the immediate vicinity. Adjacent units must be notified by radio, wire communications, or audible/verbal means. NBC calculations/computations in support of NBC hazard prediction are often done manually, which is time consuming, inadequate, manpower intensive and often unreliable. Various and diverse tactical decision aids and semi-automation techniques exist among the services; however there is no common automated method of disseminating this data.

4. Capabilities Required.

a. System Capabilities and Characteristics. Asterisked (*) items are key performance parameters. Threshold and objective requirements are identified by [T] and [O] respectively. The JWARN system will possess the following capabilities:

*(1) Integrate with and have access to current and planned individual service C⁴I² systems, Global Command and Control System (GCCS), DoD Defense Intelligence Information System (DIIS), Defense Information Infrastructure (DII), Common Operating Environment (COE), and DMSS.

*(2) Be capable of collecting, modeling, generating, editing and disseminating NBC reports and plots and provide a means of ensuring all addressees have received a sent message.

*(3) JWARN will allow NBC reports (NBC-1 and NBC-4) to be formatted and transmitted within 2 minutes of detector/sensor alarm and allow operator selection of automatic, delayed or on-command sending of a completed NBC report.

(4) Interface with all legacy and co-developmental NBC (environmental, and toxic industrial chemical/material [O]) detectors/sensors [T].

(5) Be consistent with the current ratified version of North Atlantic Treaty Organization (NATO) Allied Tactical Publication-45B (ATP-45B), "Reporting Nuclear Detonations, Biological and Chemical Attacks, and Predicting and Warning of Associated Hazards and Hazard Areas (Operator's

Manual)" and Allied Engineering Publication 45 (AEP-45), "Reporting Nuclear Detonations, Biological and Chemical Attacks, and Predicting and Warning of Associated Hazards and Hazard Areas (Programmer's Manual)" so that all NBC reports may be automatically reported, analyzed, and disseminated. NBC message formatting will conform with United States Message Text Format (USMTF) and NATO Message Text Formatting System (Automatic Data Processing - 3). [T]

(6) Be capable of generating, displaying, and printing scalable hazard overlays (e.g., plots) resulting from NBC related attacks, NBC related accidents and incidents, and/or hazards associated with TIM at discrete time intervals as determined/required by the operator within 15 (10 [O]) minutes of completion of the analysis of data [T].

(7) Provide format, database information, operational unit updates and optimizing the software to permit creating NBC risk assessments and NBC situation reports in support of NBC reconnaissance/surveys plans, flame field expedient plans, smoke plans and decontamination plans [T]. Allow creation of NBC annexes to Operation Plans (OPLANs), Operation Orders (OPORDs), and Fragmentary Orders (FRAGOs) [O].

(8) By way of operator input or automated data input, be capable of storing, modifying, retrieving, displaying, and transferring data on weather, terrain, unit locations, and sources of attacks [T].

(9) Be able to automatically and manually provide hazard Estimated Times of Arrival (ETAs) and Estimated Times of Departure (ETDs), where applicable, to unit and operator designated locations as identified in Service specified Concepts of Operation (CONOP) [T].

(10) Display input transmissions addresses, detectors or sensors attached, and allow manual editing/input of information and map overlays [T].

(11) Be capable of displaying unit NBC information such as Mission Oriented Protective Posture (MOPP) status, Radiation Exposure Status (RES) and NBC equipment status, and operational status and expected changes for supporting chemical units [T].

(12) Display an alert signal and clear signal on the screen and provide an audible alarm upon receiving respective attack and clear signal from the detector and be capable of activating local alarm systems (e.g., pagers, sirens) [T].

(13) Access and provide detailed practical information about characteristics of NBC agents, TIM and their delivery means, symptoms and other data required for adequate risk assessment [T].

(14) Operate on mobile platforms (e.g., ground vehicles, aircraft and ships) and/or at fixed/semi-fixed sites [T].

(15) Will model and/or simulate information of NBC agents and/or TIM to forecast effects on assigned or future missions to assist in preparation of vulnerability assessments [T].

(16) Will not increase command and control center set up time or recovery time [T].

(17) Provide operator selection of automatic, delayed, and manual control modes for: JWARN configuration, self-test of the JWARN operational functions (including the initiation of those of detectors with built in test (BIT)), JWARN security operations, and execution and monitoring of JWARN operational performance. During these control operations, JWARN will not cause false positive or false negative responses of attached sensors and detectors. Malfunctions will be displayed differently than detector positive responses. [T]

(18) JWARN will be field upgradeable at the Direct Support level or equivalent [T]. JWARN will be field upgradeable at the organizational/unit level and have on-line download capability for upgrades to system software based upon changes in doctrinal procedures [O].

(19) Provide a programmable filtering capability at the operator level to validate NBC detections that will reduce unnecessary warning [T].

(20) Include embedded training capable of simulating operational scenarios, and providing component and system level operational set up and recovery [T].

(21) Operate in synchronicity with other JWARN systems to provide local redundancy of data [T].

(22) Archive and log all JWARN and detector/sensor operational data (e.g., NBC reports, Internet Protocol address, type of system, on/off status, alarm mode, and BIT functions) and have the ability to recall/restore operational data to the JWARN database [T].

b. Logistics and Readiness. Cost of ownership/affordability initiatives will be implemented during the design, development, production, and operational life of JWARN to minimize ownership cost [T].

(1) Availability. The JWARN will have a reliability of >0.92 (>0.98 [O]), an operational availability (Ao) of >0.92 (>0.98 [O]), less detectors [T].

(2) Reliability.

(a) Mission Reliability. Mean Time Between Operational Mission Failure (MTBOMF) is 1366 hours based upon a mission time of 144 hours and Reliability of 0.90 (0.95 [O]), less detectors. The MTBOMF will not be degraded when detectors are incorporated. [T]

(b) Logistics Reliability. Mean time between unscheduled maintenance (MTBUM) is 886 hours (1366 [O]) [T].

(3) Maintainability.

(a) Mean time to repair is 1 (0.5 [O]) hour, excluding logistics delay [T].

(b) Mean Corrective Maintenance Time (MCMT). MCMT will not exceed 2 (1 [O]) hours at the organizational level [T]. MCMT is defined as the total on-equipment corrective maintenance time divided by the number of on-equipment maintenance events [T].

(4) Power Source. JWARN interface will be compatible with the host platform power supply [T].

c. Other System Characteristics.

(1) Electronic Counter Countermeasure (ECCM) Requirements. JWARN will not be adversely affected by enemy use of Electronic Warfare (EW) and electronic countermeasures (ECM) and will not be prevented from transmitting and receiving NBC warnings [T].

(2) Wartime Reserve Modes (WARM) Requirements. None.

(3) Conventional, Initial Nuclear Weapons Effects, Electromagnetic Environmental Effects (E3), and NBC Contamination Survivability (NBCCS).

(a) Conventional Effects. The JWARN will be capable of performing Mission Essential Functions (MEFs) under a wide range of potential normal battlespace environmental conditions and hazards (natural and manmade [T]).

(b) NBCCS. The JWARN will be capable of being operated, maintained, and resupplied by personnel in Mission Oriented Protective Posture (MOPP) IV. Any exterior surfaces of JWARN must be capable of being decontaminated using standard decontaminants and procedures. JWARN and its hardware components will be decontaminable using non-corrosive decontaminants, (e.g., soap and water or individual decontamination kits). All equipment must withstand the material damaging effects of NBC decontamination unless the equipment will be replaced instead of being decontaminated. Equipment required for mission-essential tasks will be hardened to ensure that degradation of not more than 20 percent shall occur over a 30 day period with five exposures to NBC contaminants, decontaminants and standard decontaminating procedures. [T]

(c) E3. The JWARN will be electromagnetically compatible with other systems in its intended operating environment. The JWARN will not be degraded by the effects of EMI and will not be a source of EMI. [T]

(d) Initial Effects of Nuclear Weapons. The JWARN will be survivable to the effects of High-altitude Electro-Magnetic Pulse (HEMP) [T].

(4) Natural Environmental Factors.

(a) Be capable of performing mission essential tasks effectively in all types of geographical locations and under all types of battlefield conditions (e.g., smoke, dust, salt spray, high humidity, and sand) [T].

(b) The JWARN will be capable of performing MEFs in the following operational environments:

1. Operating Temperature. Be capable of operation under climatic conditions Basic and Hot -32°C to 49°C (-32°C to 65°C [O]) [T].

2. Storage Temperature. Be capable of operation after being stored in the temperature range of -46°C to 71°C [T].

3. Relative Humidity. The JWARN will operate in 5% to 100% relative humidity [T].

4. Ultraviolet Radiation and Salt Water Spray/Fog. With scheduled maintenance, the JWARN's exposed material will be able to withstand exposure to solar ultraviolet radiation and salt water spray/fog without degradation [T].

(5) Operational Security. The operating software, and data files will be appropriately protected and resistant to intentionally hostile or accidental attempts at unauthorized input, command, deletion, modification, or display by local operator or user, remotely via an electronic interface, or by embedded or hidden software code. Protection mechanisms will ensure that users signing on to the work station do not have access to data exceeding their access level. [T]

(6) Physical Security. Components must meet the requirements established for the highest classification of data accessible in accordance with applicable standards and regulations. Specific security measures are determined by a number of factors, including service location, and suspected threats and vulnerabilities. The Designated Approval Authority (DAA) will perform the risk assessment, specific security measures, and operating approval for service operation. [T]

(7) Protection of Classified Information. All classified information, documents, electronic transmissions, and hardware will be given appropriate levels of protection as required by DoD regulations and instructions [T].

(8) Communications Security (COMSEC). COMSEC will be maintained through the use of available secure networks. COMSEC procedures as outlined in the applicable standards and regulations will be followed to the maximum extent possible. [T]

(9) Computer Security (COMPUSEC). Protection of computer resources will be in accordance with prescribed regulations. Risk analysis and operating approvals must be pre-defined for both operational systems and support facilities to ensure compliance in-garrison and to facilitate future determination at any deployed location. [T]

(10) Safety Parameters. JWARN will not perform unintended functions that pose a safety hazard to personnel, equipment or the environment. JWARN System Safety Program will identify, evaluate and eliminate hazards to reduce the associated risk to an acceptable level. Any residual hazards or risks (known or potential) must be manageable and clearly identified in training materials. [T]

(11) Cost/Risk Driver. JWARN will use government off-the-shelf, COTS, and Non-Developmental Items (NDI) products to the maximum extent possible [T].

5. Program Support. Joint Potential Designation: Joint. Initial logistics support planning and implementation will be conducted in accordance with DoD 5000 series guidance with Cost As an Independent Variable (CAIV) considered throughout the document.

a. Maintenance Planning. Intermediate and organizational/unit level support will be based on individual Service support management concepts. Maintenance tasks and schedules are to be determined during the Logistic Support Analysis (LSA) process.

(1) Depot Level. Depot maintenance will repair components as determined by the LSA.

(2) Service maintenance concepts are outlined in the service-specific annexes.

(3) Test and Fault Isolation Capabilities. The JWARN will have a built in test/test equipment or self-diagnostic capability to monitor and detect critical failures. The Percent Correct Detection (PcD) must be greater than 95 (98 [O]) [T]. The Percent of Correct Fault Isolation (Pcfi) must be greater than 95 (98 [O]) [T]. The bit/byte False Alarm (FA) will be less than 1.0% (0.5 [O]) [T].

b. Support Equipment. No new support facilities, test equipment, tools, or repair equipment will be developed for this system. System will include test and fault-isolation capabilities as required. This system must be repairable by existing information system repairmen, small computer system specialists, and radio repairmen using existing equipment.

c. Human Systems Integration.

(1) JWARN will be fully operable, and maintainable, repairable, and supportable from the smallest by (5th percentile female) through the largest (95th percentile male) personnel from the applicable target audience, while wearing the necessary clothing and equipment, to include MOPP IV, Arctic, and basic individual gear.

(2) Manpower (force structure and end strength) requirements are addressed in service-specific annexes.

(3) Training.

(a) Operational and Maintenance Training Concepts. The JWARN may require an increase in training resources. Where feasible, computer-based training and/or distance learning will be used to minimize the impact on existing institutional courses and facilitate training at the unit level. Specific training requirements and responsibilities for preparation of training tasks, manuals, lesson plans, etc. will be developed in a joint system training plan.

(b) New Equipment Training (NET). Initial training will be provided to the selected service support activity. The support activity will be responsible for introductory training to units designated to receive the JWARN. The material developer will provide a validated New Equipment Training Support Package (NETSP) to support all phases of initial training for the JWARN system. The NETSP will maximize the use of technology in instructional and media design. The NETSP will be a complete, exportable package which integrates training products, materials and information to train individual and collective tasks.

(c) Institutional Training. Formal school training for operation and maintenance of the JWARN as well as employment concepts (i.e., doctrine, tactics, and techniques) is required and will incorporate safety and risk management into all phases of training.

(d) Unit Training. Unit training will be accomplished through established individual service guidelines.

d. Computer Resources. All software support tools and associated documentation will be provided/made available to the appropriate C⁴I² sustainment organization as determined in the JSP in order to maintain and upgrade the software after the system is deployed. JWARN software certification testing will be performed IAW appropriate DoD directives and instructions.

e. Other Logistic Considerations. In accordance with DoD 5000.2R, part 4, paragraph 4.3.7, the program shall incorporate environmental, safety and health planning throughout the program life cycle.

(1) System Provisioning Concept. Provisioning actions for JWARN will be accomplished by the lead Service's logistics support program maximizing jointness and single item management. One Single Item Manager will be designated for all Services.

(2) Unique Facility and Shelter Requirements. None.

(3) Special Packaging, Handling and Transport Requirements. No special packaging is envisioned. If the system contains radioactive or magnetic components requiring special packaging and handling, service specific regulations will be followed.

(4) System will comply with specifications and standards approved within DoD for creation, use and management of all technical and other data in digital form.

f. Command, Control, Communications, Computers, and Intelligence and Information (C⁴I²). This system will seamlessly interface with the services' C⁴I² systems and the GCCS. Specific requirements are contained in paragraph 4.a.

g. Transportation and Basing. JWARN must be capable of unrestricted air, highway, rail, and marine transport worldwide.

h. Standardization, Interoperability, and Commonality. Related efforts in automating NBC Warning and Reporting are as follows: JWARN will use standard components to the maximum extent possible to allow interoperability among the Services. Protocols and standards selected for implementation within JWARN will comply with the DoD Joint Technical Architecture (JTA). JWARN will also be developed and implemented IAW DoD Intelligence Information System (DODIIS) and DII-COE standards. This approach will enable integration with other DoD C1 systems and facilitate installations in additional Joint and Combined command centers and units.

i. Mapping, Charting, and Geodesy (MC&G) Support.

(1) JWARN must use standard DoD geospatial information products and services directly, to maximum extent and without intervening transformations. JWARN must also be compliant with World Geodetic System 84 (WGS).

(2) Digital terrain data will be produced and approved for dissemination to Joint forces by the National Imagery and Mapping Agency. JWARN will be able to import, use, and export other commercial and government digital geospatial data as required.

(3) Requirements for the National Imagery and Mapping Agency (NIMA) will be coordinated by the material developer.

j. Environmental Support. The JWARN is not required to possess any inherent geodesy capability. JWARN operators will have the ability to provide location data, or retrieve stored environmental/location data using appropriate DII-COE compliant segments to compile NBC reports.

6. Force Structure. See service-specific annexes.

7. Schedule Considerations.

a. Initial Operational Capability (IOC). The JWARN initial operational capability is scheduled for FY02. IOC will be achieved when JWARN is fielded to initial units and training base, unit personnel are trained, training base is established, and a maintenance system is in place.

b. Full Operational Capability. Full operational capability is scheduled for FY04. Full operations capability will be achieved when JWARN is totally procured, the identified force structure is trained, and a maintenance system is in place.

5 Annexes:

Annex A--Rationale Annex

Annex B--US Army Annex

Annex C--US Navy Annex

Annex D--US Marine Corps Annex

Annex E--US Air Force Annex

Annex F--Special Operations Command Annex

RATIONALE ANNEX
TO THE
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FOR A
Joint NBC Warning and Reporting System (JWARN)

4.a.(1) **Requirement:** Integrate with and have access to current and planned individual service C⁴I² systems, Global Command and Control System (GCCS), DoD Defense Intelligence Information System (DIIS), Defense Information Infrastructure (DII), Common Operating Environment (COE), and DMSS. **Rationale:** Identified requirements reflect mission profile and employment scenario. JWARN is envisioned as a segment of the C⁴I² system. Command and control is optimized by digital transmission that complies with the DoD Joint Technical Architecture (JTA) ensuring interoperability with existing systems.

4.a.(2) **Requirement:** Be capable of collecting, modeling, generating, editing and disseminating NBC reports and plots and provide a means of ensuring all addressees have received a sent message. **Rationale:** Identified requirements reflect mission profile and employment scenario.

4.a.(3) **Requirement:** JWARN will allow NBC reports (NBC-1 and NBC-4) to be formatted and transmitted within 2 minutes of detector/sensor alarm and allow operator selection of automatic, delayed or on-command sending of a completed NBC report. **Rationale:** Identified requirements reflect mission profile and employment scenario.

4.a.(4) **Requirement:** Interface with all legacy and co-developmental NBC (environmental, and toxic industrial chemical/material [O]) detectors/sensors [T]. **Rationale:** Identified requirements reflect mission profile and employment scenario.

4.a.(5) **Requirement:** Be consistent with the current ratified version of North Atlantic Treaty Organization (NATO) Allied Tactical Publication-45B (ATP-45B), "Reporting Nuclear Detonations, Biological and Chemical Attacks, and Predicting and Warning of Associated Hazards and Hazard Areas (Operator's Manual)" and Allied Engineering Publication 45 (AEP-45), "Reporting Nuclear Detonations, Biological and Chemical Attacks, and Predicting and Warning of Associated Hazards and Hazard Areas (Programmer's Manual)" so that all NBC reports may be automatically reported, analyzed, and disseminated. NBC message formatting will conform with United States Message Text Format (USMTF) and NATO Message Text Formatting System (Automatic Data Processing - 3). [T] **Rationale:** Identified requirements reflect mission profile and employment scenario. Standardized NBC reports and formats are essential to ensuring compatibility with all partners in the battle cube.

4.a.(6) **Requirement:** Be capable of generating, displaying, and printing scalable hazard overlays (e.g. plots) resulting from NBC related attacks, NBC related accidents and incidents, and/or hazards associated with TIM at discrete time intervals as determined/required by the operator within 15 (10 [O]) minutes of completion of the analysis of data [T]. **Rationale:** Identified requirements reflect mission profile and employment scenario.

4.a.(7) **Requirement:** Provide format, database information, operational unit updates and optimizing the software to permit creating NBC risk assessments and NBC situation reports in support of NBC reconnaissance/surveys plans, flame field expedient plans, smoke plans and decontamination plans [T]. Allow creation of NBC annexes to Operation Plans (OPLANs), Operation Orders (OPORDs), and Fragmentary Orders (FRAGOs) [O]. **Rationale:** Identified requirements reflect mission profile and employment scenario and will enhance the commander's ability to conduct risk assessment.

4.a.(8) **Requirement:** By way of operator input or automated data input, be capable of storing, modifying, retrieving, displaying, and transferring data on weather, terrain, unit locations, and sources of attacks [T]. **Rationale:** Identified requirements reflect mission profile and employment scenario.

4.a.(9) **Requirement:** Be able to automatically and manually provide hazard Estimated Times of Arrival (ETAs) and Estimated Times of Departure (ETDs), where applicable, to unit and operator designated locations as identified in Service specified Concepts of Operation (CONOP) [T]. **Rationale:** Identified requirements reflect mission profile and employment scenario and enhance the commander's ability to provide early warning information to units in potential hazard areas.

4.a.(10) **Requirement:** Display input transmissions addresses, detectors or sensors attached, and allow manual editing/input of information and map overlays [T]. **Rationale:** Identified requirements reflect mission profile and employment scenario. Automatic updating of unit and detector locations will facilitate rapid identification of the hazard, enhance plotting and predicting of potential hazard areas and facilitate early warning.

4.a.(11) **Requirement:** Be capable of displaying unit NBC information such as Mission Oriented Protective Posture (MOPP) status, Radiation Exposure Status (RES) and NBC equipment status, and operational status and expected changes for supporting chemical units [T]. **Rationale:** Monitoring unit status facilitates the decision process that will drive risk assessment and reduce unit degradation.

4.a.(12) **Requirement:** Display an alert signal and clear signal on the screen and provide an audible alarm upon receiving respective attack and clear signal from the detector and be capable of activating local alarm systems (e.g. pagers, sirens) [T]. **Rationale:** Identified requirements reflect mission profile and employment scenario. Obtaining a clear signal will assist the unit in the initiation of unmasking procedures and reduction of Mission Oriented Protective Posture.

4.a.(13) **Requirement:** Access and provide detailed practical information about characteristics of NBC agents, TIM and their delivery means, symptoms and other data required for adequate risk assessment [T]. **Rationale:** Identified requirements reflect mission profile and employment scenario and will enhance the commanders ability to conduct NBC risk assessment.

4.a.(14) **Requirement:** Operate on mobile platforms (e.g. ground vehicles, aircraft and ships) and/or at fixed/semi-fixed sites [T]. **Rationale:** Identified requirements reflect mission profile and employment scenario.

4.a.(15) **Requirement:** Will model and/or simulate information of NBC agents and/or TIM to forecast effects on assigned or future missions to assist in preparation of vulnerability assessments [T].

Rationale: Identified requirement will allow JWARN to assist the commander in NBC risk assessment as well as provide future operations planning and increased training capability.

4.a.(16) **Requirement:** Will not increase command and control center set up time or recovery time [T].

Rationale: Identified requirements reflect mission profile and employment scenario.

4.a.(17) **Requirement:** Provide operator selection of automatic, delayed, and manual control modes for: JWARN configuration, self-test of the JWARN operational functions (including the initiation of those of detectors with built in test (BIT)), JWARN security operations, and execution and monitoring of JWARN operational performance. During these control operations, JWARN will not cause false positive or false negative responses of attached sensors and detectors. Malfunctions will be displayed differently than detector positive responses. [T] **Rationale:** To facilitate the networking of detection events (e.g., detector and/or unit reports) at various levels of Command and Control, the JWARN must have the ability to obtain and display status of detectors (confidence test "ping"), as well as the ability to manually predetermine the parameters for JWARN's initiation of an alarm event. False alarms create confusion, reduce confidence and degrade readiness. A false alarm is defined as if JWARN interprets an input as a detection event when no actual detection has taken place, or if JWARN initiates an alarm event when the preset prerequisites for an alarm event have not been met, or if JWARN inadvertently signals a false positive to a sensor/detector during a status query.

4.a.(18) **Requirement:** JWARN will be field upgradeable at the Direct Support level or equivalent [T]. JWARN will be field upgradeable at the organizational/unit level and have on-line download capability for upgrades to system software based upon changes in doctrinal procedures [O]. **Rationale:** The JWARN must have growth potential to keep pace with emerging information age technologies as well as continued compatibility with host C⁴I² systems.

4.a.(19) **Requirement:** Provide a programmable filtering capability at the operator level to validate NBC detections that will reduce unnecessary warning [T]. **Rationale:** To facilitate the networking of detection events (e.g., detector and/or unit reports) at various levels of Command and Control, the JWARN must have the ability to obtain and display status of detectors (confidence test "ping"), as well as the ability to manually predetermine the parameters for JWARN's initiation of an alarm event.

4.a.(20) **Requirement:** Include embedded training capable of simulating operational scenarios, and providing component and system level operational set up and recovery [T]. **Rationale:** To reduce or eliminate the need for training devices and take advantage of emerging technologies in instructional and media design.

4.a.(21) **Requirement:** Operate in synchronicity with other JWARN systems to provide local redundancy of data [T]. **Rationale:** Will ensure that relevant NBC data is maintained in multiple locations.

4.a.(22) **Requirement:** Archive and log all JWARN and detector/sensor operational data (e.g., NBC reports, Internet Protocol address, type of system, on/off status, alarm mode, and BIT functions) and have the ability to recall/restore operational data to the JWARN database [T]. **Rationale:** To ensure that exposure data is available to reconstruct events.

4.b. **Requirement:** Cost of ownership/affordability initiatives will be implemented during the design, development, production, and operational life of JWARN to minimize ownership cost [T]. **Rationale:** 100 percent reliability is statistically impossible to accomplish. Percentages listed will ensure availability to meet mission requirements.

4.b.(1) **Requirement:** The JWARN will have a reliability of >0.92 (>0.98 [O]), an operational availability (Ao) of >0.92 (>0.98 [O]), less detectors [T]. **Rationale:** 100 percent reliability is statistically impossible to accomplish. Percentages listed will ensure availability to meet mission requirements.

4.b.(2)(a) **Requirement:** Mean Time Between Operational Mission Failure (MTBOMF) is 1366 hours based upon a mission time of 144 hours and Reliability of 0.90 (0.95 [O]), less detectors. The MTBOMF will not be degraded when detectors are incorporated. [T] **Rationale:** 100 percent reliability is statistically impossible to accomplish. Percentages listed will ensure availability to meet mission requirements.

4.b.(2)(b) **Requirement:** Mean time between unscheduled maintenance (MTBUM) is 886 hours (1366 [O]) [T]. **Rationale:** 100 percent reliability is statistically impossible to accomplish. Percentages listed will ensure availability to meet mission requirements.

4.b.(3)(a) **Requirement:** Mean time to repair is 1 (0.5 [O]) hour, excluding logistics delay [T]. **Rationale:** 100 percent reliability is statistically impossible to accomplish. Percentages listed will ensure availability to meet mission requirements.

4.b.(3)(b) **Requirement:** Mean Corrective Maintenance Time (MCMT). MCMT will not exceed 2 (1 [O]) hours at the organizational level [T]. MCMT is defined as the total on-equipment corrective maintenance time divided by the number of on-equipment maintenance events [T]. **Rationale:** Identified requirements reflect mission profile and employment scenario.

4.b.(4) **Requirement:** JWARN interface will be compatible with the host platform power supply [T]. **Rationale:** The JWARN must be compatible with the host system/platform power supply and UPS ensures continuous availability for mission accomplishment.

4.c.(1) **Requirement:** JWARN will not be degraded adversely affected by enemy use of electronic warfare (EW) and electronic countermeasures (ECM) and will not be prevented from transmitting and receiving NBC warnings [T]. **Rationale:** Identified requirements reflect mission profile and employment scenario.

4.c.(2) Wartime Reserve Modes (WARM) Requirements. None.

4.c.(3)(a) **Requirement:** The JWARN will be capable of performing Mission Essential Functions (MEFs) under a wide range of potential normal battlespace environmental conditions and hazards (natural and manmade) [T]. **Rationale:** Identified requirements reflect mission profile and employment scenario.

4.c.(3)(b) **Requirement:** The JWARN will be capable of being operated, maintained, and resupplied by personnel in Mission Oriented Protective Posture (MOPP) IV. Any exterior surfaces of JWARN must be capable of being decontaminated using standard decontaminants and procedures. JWARN and its components will be decontaminatable using non-corrosive decontaminants, (e.g., soap and water or individual decontamination kits). All equipment must withstand the material damaging effects of NBC decontamination unless the equipment will be replaced instead of being decontaminated. Equipment required for mission-essential tasks will be hardened to ensure that degradation of not more than 20 percent shall occur over a 30 day period with five exposures to NBC contaminants, decontaminants and standard decontaminating procedures. [T] **Rationale:** Identified requirements reflect mission profile and employment scenario.

4.c.(3)(c) **Requirement:** The JWARN will be electromagnetically compatible with other systems in its intended operating environment. The JWARN will not be degraded by the effects of EMI and will not be a source of EMI [T]. **Rationale:** Identified requirements reflect mission profile and employment scenario.

4.c.(3)(d) **Requirement:** Initial Effects of Nuclear Weapons. The JWARN will be survivable to the effects of High-altitude Electro-Magnetic Pulse (HEMP) [T]. **Rationale:** Identified requirements reflect mission profile and employment scenario.

4.c.(4)(a) **Requirement:** Be capable of performing mission essential tasks effectively in all types of geographical locations and under all types of battlefield conditions (e.g., smoke, dust, salt spray, high humidity, and sand) [T]. **Rationale:** Identified requirements reflect mission profile and employment scenario. JWARN must be capable of rejecting common battlespace/environmental interferents and be functional in its intended operational environment. Relative humidity potentially encountered during operations.

4.c.(4)(b) **Requirement:** The JWARN will be capable of performing MEFs in the following operational environments:

1. Operating Temperature. Be capable of operation under climatic conditions Basic and Hot - 32°C to 49°C (-32°C to 65°C [O]) [T].

2. Storage Temperature. Be capable of operation after being stored in the temperature range of -46°C to 71°C [T].

3. Relative Humidity. The JWARN will operate in 5% to 100% relative humidity [T].

4. Ultraviolet Radiation and Salt Water Spray/Fog. With scheduled maintenance, the JWARN's exposed material will be able to withstand exposure to solar ultraviolet radiation and salt water spray/fog without degradation [T].

Rationale: Identified requirements reflect mission profile and employment scenario. JWARN must be capable of rejecting common battlespace/environmental interferents and be functional in its intended operational environment. Relative humidity potentially encountered during operations.

4.c.(5) **Requirement:** The operating software, and data files will be appropriately protected and resistant to intentionally hostile or accidental attempts at unauthorized input, command, deletion, modification, or display by local operator or user, remotely via an electronic interface, or by embedded or hidden software code. Protection mechanisms will ensure that users signing to the work station do not have access to data exceeding their access level. [T] **Rationale:** The JWARN will be afforded protection against terrorism, pilferage, or unauthorized use to ensure availability to accomplish mission requirements.

4.c.(6) **Requirement:** Components must meet the requirements established for the highest classification of data accessible in accordance with applicable standards and regulations. Specific security measures are determined by a number of factors, including service location, and suspected threats and vulnerabilities. The Designated Approval Authority (DAA) will perform the risk assessment, specific security measures, and operating approval for service operation. [T] **Rationale:** The JWARN will be afforded protection against terrorism, pilferage, or unauthorized use to ensure availability to accomplish mission requirements.

4.c.(7) **Requirement:** All classified information, documents, electronic transmissions, and hardware will be given appropriate levels of protection as required by DoD regulations and instructions [T].

Rationale: The JWARN will be afforded protection against terrorism, pilferage, or unauthorized use to ensure availability to accomplish mission requirements.

4.c.(8) **Requirement:** COMSEC will be maintained through the use of available secure networks. COMSEC procedures as outlined in the applicable standards and regulations will be followed to the maximum extent possible [T]. **Rationale:** The JWARN will be afforded protection against terrorism, pilferage, or unauthorized use to ensure availability to accomplish mission requirements.

4.c.(9) **Requirement:** Protection of computer resources will be in accordance with prescribed regulations. Risk analysis and operating approvals must be pre-defined for both operational systems and support facilities to ensure compliance in-garrison and to facilitate future determination at any

deployed location. [T] **Rationale:** The JWARN will be afforded protection against terrorism, pilferage, or unauthorized use to ensure availability to accomplish mission requirements.

4.c.(10) **Requirement:** JWARN will not perform unintended functions that pose a safety hazard to personnel, equipment or the environment. JWARN System Safety Program will identify, evaluate and eliminate hazards to reduce the associated risk to an acceptable level. Any residual hazards or risks (known or potential) must be manageable and clearly identified in training materials. [T] **Rationale:** The JWARN will be safe to operate, store, and maintain in its intended environment throughout its life cycle.

4.c.(11) **Requirement:** JWARN will use government off-the-shelf, COTS, and Non-Developmental Items (NDI) products to the maximum extent possible [T]. **Rationale:** A number of potential COTS/NDI partial solutions have been identified and have potential to reduce the overall cost of the program.

US ARMY ANNEX
TO THE
OPERATIONAL REQUIREMENTS DOCUMENT
FOR A
Joint NBC Warning and Reporting System (JWARN)

This annex identifies US Army-specific requirements for the JWARN. Basic document paragraphs are expanded/modified as indicated to capture Army requirements.

1. Purpose. The requirement exists for a near real-time operational capability for Army forces to report, analyze and disseminate information about Nuclear, Biological and Chemical (NBC) hazards and/or Toxic Industrial Materials (TIM) which pose a threat to forces during current and future operations. Avoidance of these hazards will be dependant upon accurate and timely reporting of NBC agent detection, identification, location, and warning information. JWARN will enable these forces to respond to an NBC attack, hazard and/or TIM in a more timely manner.

a. The JWARN will integrate all legacy, developmental, and future NBC detectors and sensors utilizing standard port connections. This capability will allow JWARN to receive automatic, delayed or manual NBC reports originating from different type detectors/sensors simultaneously. The deployment, operation and maintenance goals of the JWARN will meet the Force XXI defense strategy for the Army. The Force XXI defense strategy is built on four principles: Sense the battlespace; Shape the battlespace; Shield the force; and Sustain the force. Shielding the force prevents NBC casualties through threat reduction, contamination avoidance, physical protection, warning and pre-treatments. The JWARN assumes a major role in this principle.

b. Operational Concept. JWARN is NBCWRS that will provide the operations commander a greater ability to avoid contamination therefore reducing the number of NBC related casualties, decontamination operations, and conserving large quantities of resources associated with decontamination operations. The system will provide the operations commander the ability to protect the force and in projecting the force to support a more diversified battlespace. JWARN will be used by Army forces in areas where it is reasonable to expect NBC weapons will be employed against friendly forces or TIMs will be encountered. Armed with the superior situational awareness and continuous real-time Intelligence Preparation of the Battlefield, operations commanders will require a faster and more accurate means of conducting NBCWRS so that troops can rapidly adapt to a changing environment. JWARN will be a resident program residing on all GCSS, GCCS, GCSS-A, AFATDS, MCS and FBCB2 Army Tactical Command and Control Systems (ATCCS). A JWARN operator will require a thorough knowledge of the ATCCS system which JWARN resides on. JWARN will be utilized in battalion through Corps-level Command Posts (CP) semi-fixed sites where it resides on host ATCCS and in individual vehicles equipped with FBCB2. JWARN will also be available for specific units operating independently. Platforms include the M1 Abrams MBT, M2 Bradley fighting vehicle, M93 FOX Reconnaissance vehicle, M109 self-propelled howitzer, HMMWV variants, and the C2V. Detectors/sensors include the ACADA, AN/VDR-2, BIDS, FOX, M8A1, M21 and developmental/future detectors and sensors associated with the Joint Biological Point Detection System

(JBPDS) and Joint Biological Stand-off Detection System (JBSDS). The final products (sensors/detectors) associated with these systems will be based on the availability of new technology from continuous research and development. JWARN will provide greater warning and response time when used in conjunction with designated detectors/sensors equipped with Multi-Integrated Chemical Agent Detector (MICAD). MICAD will increase the distance between the detector/sensor and alarm to 5kms (line of sight). JWARN will be employed to support missions during peacetime and wartime operations including expeditionary and power projection operations. The system will also support other hazard assessment missions as necessary.

(1). During the planning phase the operations commander will be evaluating the battlespace. He needs to understand his requirements, know what resources are required, and have the available resources to meet his battle commitments. Force XXI and the Army After Next will provide the operations commanders with more accurate and up to date situational awareness and require them to deploy troops faster. During this phase, NBC personnel will utilize JWARN to conduct NBC analysis of the battlespace, create NBC threat templates and/or models, and produce NBC intelligence products for dissemination.

(2). During the preparation phase the operations commander will be allocating his available resources and synchronizing the allocation and movement of these resources with all the other assets within the battlespace. During this phase, the NBC personnel will use JWARN in conjunction with the host ATCCS (and intelligence information) to further define enemy capabilities and possible Courses of Actions (COAs), assist in determining friendly NBC asset missions, selecting locations for NBC assets, and designate appropriate area of coverage for those assets. The JWARN will also be used to make casualty predictions.

(3). During execution, the JWARN system will be used to conduct fast and accurate reporting of NBC/TIM hazards. After a positive detection by a sensor or detector, an NBC Report will be generated and forwarded to a higher headquarters. Once reported, hazard plots will be created and disseminated so that troops can avoid these areas (if possible) eliminating the requirement to conduct decontamination operations or assume the appropriate protective posture reducing/eliminating the NBC casualties. By conducting fast and accurate NBCWRS, NBC staff personnel will reduce/eliminate disruptions to the operational tempo. In conjunction with the host ATCCS, JWARN will be used to conduct recovery and reconstitution planning.

2. Training Impact.

a. Organizational

(1) Training devices will not be required since actual components of the system will be used. New Equipment Team Training (NETT) will be provided by contractor and/or Government NETT teams. The purpose of the initial training will provide commands with trained personnel who will have the inherent expertise to operate the system.

(2) Where feasible, initial training and refresher training will be conducted via interactive computer-based training and/or distance learning to minimize the impact on existing institutional courses and facilitate training at unit level.

b. Installation

(1) Where feasible, initial training and refresher training will be conducted via interactive computer-based training and/or distance learning to minimize the impact on existing institutional courses and facilitate training at unit level.

(2) Installations will coordinate with on-site/off-site contracted Program Managers (PM) to establish, equip, and maintain classroom facilities to conduct initial and sustainment training.

c. Institutional

(1) JWARN will be implemented into the programs of instructions of the various command level NBC schools and the Services' NBC Defense courses at Fort Leonard Wood, MO.

(2) Several tasks in the Military Occupational Skill (MOS) manuals (Skill Levels 2 and 3-4) will need revision.

3. Maintenance.

a. Operator Maintenance. Operator will perform periodic checks and services including pre-operational tests and initiation of Built-in-Test for fault isolation. The operator will be responsible for removal and replacement of system hardware components (detector interface).

b. Organizational Maintenance. Components will be Direct Exchanged (DX) at Direct Support (DS) level.

c. Depot Maintenance. Depot level maintenance will be a direct exchange of hardware components (one for one). Depot level repair of hardware components will only be undertaken if it is economically required.

d. System Administrator. Will be used to “push” software up-grades to all user terminals from a central location. The “push” method is the most economical and efficient method of delivering upgrades and provides greater control over installation options and disk space consumption.

e. Contractor Support. Maintenance may require contractor support. Contractor support is not desirable, but may be required.

4. System Quantity Requirements. 1500 copies of software and 44,000 sets of communications equipment and detector/sensor hardware.

5. MANPRINT.

a. Manpower. The JWARN shall not increase the operator, maintainer, repairer, or supporter manpower requirements and shall not require force structure increases.

b. Personnel. The JWARN shall not require new MOS, ASI, or increases in physical or cognitive requirements for operators, maintainers, repairers, or supporters.

c. Human Factors Engineering. The JWARN will be designed and configured to provide an uncomplicated interface with users (installers, operators, maintainers) to minimize training burden, operator error, and workload.

d. Safety. The design features and operating characteristics of the JWARN shall serve to minimize the potential for human or machine errors or failures and/or operating conditions that cause injurious accidents.

e. Health Hazards. The JWARN design features and operating characteristics shall not create significant risk of bodily injury or death. The JWARN must comply with applicable Health, Safety, and Human Engineering design performance and operational requirements. Health Hazard Assessment (HHA) is an integral part of the design process and will be conducted to evaluate health risks to user, maintainer, handler and warehouser. All health hazards will be eliminated or reduced to a level acceptable to the U.S. Army Surgeon General. A HHA for the JWARN will be requested by the Materiel Developer early in the development cycle. This HHA will be updated at each major milestone review.

f. Soldier Survivability. The characteristics of the JWARN will reduce the detectability and probability of host ATCCS being attacked, as well as minimizing the extent/severity of soldier injury if an attack does occur.

US NAVY ANNEX
TO THE
OPERATIONAL REQUIREMENTS DOCUMENT
FOR A
NBC JOINT WARNING AND REPORTING NETWORK
(JWARN)

This annex identifies US Navy-specific concept of operations and requirements for the JWARN.

1. General Information. The Naval JWARN CONOPS provides for several scenarios involving ships in port, ships at sea and shore facilities and Mobile units.

The Navy fielding of JWARN will provide U.S. Naval forces with a comprehensive analysis and response capability for hostile NBC attacks or accidents/incidents. JWARN will be compatible and integrated with the joint (Global Command and Control System (GCCS) when installed on Navy platforms, shore-based facilities and Mobile units and will be installed in the Global Command and Control System - Maritime (GCCS-M). The Navy JWARN system will be comprised of mission application software installed on the GCCS-M workstations, and the hardware (site dependent) and software necessary to interface with existing and developmental NBC detectors.

JWARN is to serve as an NBC information management system that receives detector inputs, collects intelligence and meteorological data as well as other tactical information regarding own and enemy weapons capabilities. JWARN will be used in conjunction with tactical systems to provide the capability to support command decision-making and risk management in NBC operations, including personnel protection levels, ship maneuvering and decontamination.

JWARN must be capable of digitally receiving NBC attack data from and disseminating results to shipboard tactical C4I2 systems. Output to the tactical systems would include attack locations, multi-dimensional (concentration, area, time) data about hazard areas, and maneuver recommendations including both avoidance and minimum exposure routes.

2. Operational Concept of Operations

a. At sea: JWARN will support both independent missions and Joint Task Forces (JTF) such as Carrier Battle Groups (CVBGs) and Amphibious Readiness Groups (ARGs) where shipboard detectors and data are networked across the theater of operations and data integration and analysis is conducted at a higher level command and control center. Naval forces at sea operate under a Composite Warfare Commander (CWC) doctrine. In case of an NBC event, IAW OPLANS/OPORDS, the closest ship or force would take charge as the on-scene commander and send warning and reporting messages to the task force commander. Ships tactical management of an NBC response (maneuver, event location reporting, etc.) is conducted in the Combat Information Center (CIC) where JWARN and the operator will ultimately disseminate NBC information within the ship and battle group. Command & Control personnel that include the embarked JTF staff and operators from the ship's CIC staff will operate JWARN. Although the embarked staff may use

GCCS-M as their primary system within the Flag Plot, the ships Commanding Officer (CO) and the ships Tactical Action Officer (TAO) will use their tactical systems as their primary display. JWARN must interface with these components. The concept is to have an operator in the loop to prevent the dissemination of messages with incorrect information, such as false alarms.

b. In-Port Operations: Ships in port would assist the local base/military or sea port command in warning and reporting and assessing any NBC event. Organic DC management systems would be used for protection and decontamination of the ship. In ports where there is no local military NBC command, ships would coordinate with local disaster preparedness organizations as well as notify the established Military chain of command for NBC events.

c. Shore installations: A remote/isolated command and control center (contrast with the CINCs Fleet Command Center (FCC) located on an established larger Naval Shore facility/base), an operator will monitor the performance of the fixed sensors on that shore facility via JWARN links. The operator executes command and control functions when prompted by the network's NBC sensors. The sensors will issue detection indications to the personnel in the local area and will send both visual and audible indications to the operator if an NBC threat is detected. The JWARN operator will be able to enable or disable the local sensor indications. The sensors will send indications, either automatically or via operator, to the next higher operational headquarters where the installation commander combines this information with other resources (intelligence, current operations, medical information, etc.) to make decisions and take appropriate actions. Indication of a NBC attack may not be automatically sent to an external network. The JWARN automatically generates standard NBC reports for dissemination.

3. JWARN Platforms.

- a. Surface Combatants: JWARN will be installed on each ship.
- b. Amphibious / Mine Warfare ships: JWARN will be installed on each ship.
- c. Aviation Capable ships: JWARN will be installed on each ship.
- d. Sealift Command ships; JWARN will be installed on selected ship.
- e. Coastal Warfare Units: JWARN will be installed on each MIUW unit.
- f. Aircraft: Application not yet determined.
- g. Naval Installations: JWARN to be installed at C4I2 locations.

4. Maintenance: Before implementation of a final maintenance concept, a Level of Repair Analysis (LORA) will be conducted to determine the most cost effective maintenance approach. The current maintenance concept envisions two levels: Organizational level (O-level) and Depot level (D-level). This maintenance concept applies equally to Afloat, Ashore, and mobile activities with only minor

differences. The maintenance philosophy remains the same, traditional supply support for some items (onboard sparing), direct ISEA support for others, and vendor warranty support for the reminder, if applicable. Fault isolation and replacement of failed components will be done at the O-level.

a. Spare parts: In order to establish a spares provisioning strategy, which fully supports system readiness requirements, a Readiness Based Sparing (RBS) model analysis will be conducted.

b. Support Equipment: If JWARN requires development of system support equipment it will be evaluated and considered utilizing the Consolidated Automated Support System (CASS) to ensure no redundancy of required support equipment.

c. Life Cycle Affordability: TBD

5. Organizational:

a. Human Systems Integration: Manpower, Personnel, and Training (MPT) requirements will be determined in accordance with OPNAVINST 1500.76 (TRPPM) and validated in a Joint System Training Plan (J-STRAP). A MPT/Hardware Integration analysis will be performed in accordance with DODM 5000.2R. As a threshold, manning requirements will not be increased with the introduction of JWARN. As an objective, a decrease in operator and maintainer manpower requirements will be pursued based on results of the tradeoff analysis. Trade-offs, which reduce MPT requirements, will be favored during design and development. Contractor furnished, computer-based, and/or embedded training will be investigated as a means to reduce off-site and dedicated classroom training requirements.

b. Manpower: The introduction of JWARN will not increase the manning requirements.

c. Personnel: The following personnel will operate and maintain the JWARN:
Electronics Technician, Operations Specialist, or other designated personnel as appropriate.

d. Training: Institutional training for the operation and maintenance of the JWARN will be developed and in place for designated personnel by the time of deployment. Familiarization training should be developed for Surface Warfare officers (1110) and Naval Fight officers (1360). Training should also be developed for Afloat Training Groups. Training for employment concepts (i.e. Doctrine, Tactics and Techniques) will be developed and incorporated where needed as a course of instruction.

6. System Quantity Requirements:

SPONSORS	JWARN
N093 Medical	0
N4 Ashore	0
N4 Sealift Ships	0
N85 Amphib Ships	36
N85 LCACs/LCUs	109
N85 Mine Warfare	0
N85 Coastal Warfare	0
N85 Beach Groups	0
N85 MPF	0
N85 EOD	0
N85 Special Warfare	14
N86 Surface Ships	116
N87 Sub./ Sub Tenders	0
N88 Aircraft Carriers	16
N88 Aircraft	0
USCG	0
Training	25
TOTAL	316

US MARINE CORPS ANNEX
TO THE
OPERATIONAL REQUIREMENTS DOCUMENT
FOR A
Joint NBC Warning and Reporting System (JWARN)

This annex identifies US Marine Corps-specific requirements for the JWARN. Basic document paragraphs are expanded/modified as indicated to capture U.S. Marine Corps requirements.

1. Maintenance. The JWARN will employ the current Marine Corps maintenance philosophy of three levels and five echelons of maintenance.

a. Operator maintenance will consist of system wipe-down and pre-operational check of all system components.

b. Organizational level maintenance will consist of pre-operational self tests, Built-in-Test, and fault isolation to obtain a go/no-go indication.

c. Intermediate level maintenance will fault isolate to the component level and replace failed components as authorized.

d. Maintenance may require contractor support. Contract maintenance is not desirable, but can be identified as part of a warranty agreement

e. Tools and General Purpose Test Equipment can be found in TM 10510/15-1A. The contractor shall develop a Support Equipment Candidate List (SECL) of TMDE for maintenance actions for system level, LRU, and CCA. The contractor shall develop Support Equipment Recommendations Data (SERD) detailing the recommended test equipment and testing applications. SERDs shall not be submitted for the same item of equipment or for equipment currently in the Marine Corps inventory. Calibration and Measurements Requirements Summary (CMRS) shall be developed by the contractor only for items submitted on SERDs and designated by the government for CMRS submission.

2. Organizational.

a. System Location/Distribution. The JWARN will be located in NBC Control Centers down to the battalion / selected squadron level.

b. Personnel. The JWARN will be maintained by unit NBC specialists, MOS 5711/5702. Operation may be by NBC specialists or other designated operators. No increase in personnel is required. A Training, Planning Process Methodology (TRPPM) per OPNAVINST 1500.76 analysis will be required to determine additional requirements for any service specific maintainers/repairers.

c. System Quantity Requirements. 262

* Quantities include 68 JWARN for LNBCRS systems.

US AIR FORCE ANNEX
TO THE
OPERATIONAL REQUIREMENTS DOCUMENT
FOR A
JOINT NBC WARNING AND REPORTING SYSTEM (JWARN)

This annex identifies US Air Force-specific requirements for the JWARN. Basic document paragraphs are expanded/modified as indicated to capture Air Force requirements.

SECTION 1 - GENERAL

1.1. Operational Concepts: JWARN will provide USAF NBC forces with a comprehensive analysis and response capability to minimize the effect of hostile NBC attacks or accidents/incidents by providing the means to collect, analyze, report, and disseminate NBC agent detection, identification, location, and warning information.

SECTION 2 - DESCRIPTION

2.1. Mission/Tasks. The JWARN system will provide a near real-time operational capability for Joint Forces to report, analyze, and automate NBC agent detection, identification, location, warning information and battlefield management. The JWARN system will be networked with the NBC detectors in the field and will also be compatible with and connected to Joint Service Command, Control, Communications, Computer, Intelligence and Information (C4I2) systems and networks. The Air Force will use Theater Deployable Communications (TDC) to move data within a deployed environment. Figure 1, Air Force JWARN Employment, provides a visual interpretation of the command and control relationships for installation and higher levels.

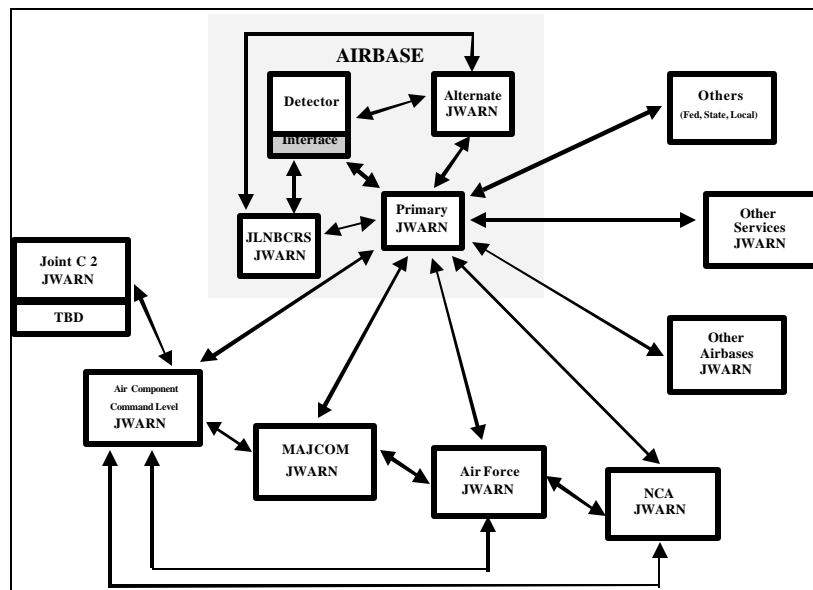


Figure 1 – Air Force JWARN Employment

2.2. Description/Capabilities: JWARN will provide the Air Force with a comprehensive analysis and near real-time response capability to minimize the effect of NBC events, including toxic industrial materials (TIMs) and response to accidents/incidents involving weapons of mass destruction (WMD). JWARN will provide the means to collect, analyze, report, and disseminate NBC agent detection, identification, location and warning. JWARN is being fielded in Three Phases.

2.2.1. Phase I is comprised of three Government Off-the-Shelf (GOTS) programs and one Commercial Off-the-Shelf (COTS) program. These programs are:

2.2.1.1. NBC-ANALYSIS (NBCA). NBCA is a COTS software program that provides hazard prediction warning and reporting procedures for NBC attacks based on standard North Atlantic Treaty Organization (NATO) Allied Technical Publication-45 (ATP-45). NBCA was designed for war fighters to determine and display NBC hazard areas resulting from the use of NBC weapon systems and dissemination devices. It has the ability to provide hazard estimates for onset times and duration of hazard. NBCA also provides database management to store information used to warn units and can generate the standard ATP-45 message set and overlays. The program operates in exercise (EXER) and operational (OPER) modes. Reports from several exercises and operations can be stored as scenarios. NBCA requires that map sets be imported manually into the program for the desired location (additional map importation data is contained in Appendix A). NBCA does not include the ability to model winds over complex terrain.

2.2.1.2. Hazard Prediction and Assessment Capability (HPAC). HPAC is a GOTS software program developed for predicting the hazard effects of NBC facility accidents/incidents and to provide overlays of nuclear, biological and chemical hazard calculation on a map or as a cross-section of the atmosphere. HPAC includes the ability to support a general assessment capability for NBC material released from incidents or accidents at production and storage facilities, or nuclear weapons events. HPAC provides a workstation-based capability for modeling winds over complex terrain and for forecasting weather. HPAC includes maps of the world provided by the National Imagery and Mapping Agency (NIMA). The program includes the ability to provide a footprint of the hazard area to be viewed for any location. HPAC does not include the standard ATP-45 message set.

2.2.1.3. Vapor Liquid Solid Tracking (VLSTRACK). VLSTRACK is a GOTS software program developed to provide downwind hazard prediction for a wide range of chemical and biological agents and munitions. It determines the size, shape, onset time, duration and level of hazard from an NBC event. VLSTRACK includes a vertical wind profile meteorology forecast for high altitude releases, as well as variable meteorology, which allows the attack to be interfaced with a meteorological forecast, extending the practical range of applicability beyond constant meteorological conditions that are only valid for a couple of hours. Output can be obtained as either a cumulative hazard from the time of attack or as a periodic hazard for each time period. VLSTRACK does not utilize digitized maps; however, hazard predictions output to graphs that display the hazard footprint or contour for agent deposition, dosage, or concentration. These graphs are scaleable and can be applied as overlays on maps.

VLSTRACK does not provide hazard prediction for nuclear materials, standard ATP-45 message sets, nor the ability to model winds over complex terrain.

2.2.1.4. Emergency Management Information System (EMIS). EMIS is a software program developed to assess the effects of chemical agent releases. EMIS supports rapid hazard prediction for accidental releases of hazardous chemicals from a storage site and can be used for planning, training, and information management. This program is intended to allow the user to log into the system, predict a downwind chemical hazard, automatically find base boundary and zone crossings, view the hazard plume on a map, determine whether population centers are affected, and record additional details about the hazard. It includes maps of the eight U.S. Chemical facilities only. Additional maps are required for full utilization of the program; however, a hazard plume can be viewed on a blank map for locations that are not included. EMIS does not provide hazard prediction for nuclear or biological agents, standard ATP-45 message sets, nor have the ability to model winds over complex terrain.

2.2.2. Phase II will operate on and integrate with Air Force C4I2 systems/platforms and inter-operate with Defense Intelligence and Federal TIM databases and fulfill functional requirements for inter-service and service-specific missions. These missions include management of NBC sensors and intelligence data, the disposition of both enemy and friendly forces, meteorological data, terrain analysis, and hazard zone mapping. The objective is to provide commanders with tools to support NBC situational awareness by determining optimum placement of sensors based on sensor sensitivity data, terrain and meteorological modeling tools, and the alarm and warning of TIM. Phase II will also provide the interface hardware to connect legacy and developmental detectors

2.2.3. JWARN Phase 3 will be an all-encompassing program that meets all service requirements to automate NBC plotting, reporting, and hazard prediction, manage legacy and future NBC detector/sensor networks, and provide standardized warning notification to all levels of command.

SECTION 3 – OPERATIONS

3.1. Peacetime Mission Profile/Deployment: JWARN will be fielded to Civil Engineer Readiness Flights assigned in high and medium NBC threat areas, RED HORSE squadrons, SILVER FLAG training sites, the USAF Readiness School and the USAF School of Aerospace Medicine. JWARN will be installed at high and medium NBC threat areas as defined by Air Force Instruction 32-4001. The JWARN will be provided to all units tasked for deployment to medium and high threat areas with Designed Operational Capability (DOC) tasking for Unit Type Codes (UTC). JWARN will be employed in the Disaster Preparedness Control Center and/or the NBC Cell (primary, alternate and tertiary) portion of the Survival Recovery Center (SRC) at all wing operating locations and within the Joint Services Lightweight NBC Reconnaissance System (JSLNBCRS).

3.1.1. Operational Procedures. JWARN will be maintained in an operational status (networked detectors and command and control functions) at all high and medium threat installations when intelligence dictates a near-term or immediate NBC threat. CONUS locations may use the software

provided with JWARN for modeling and prediction of TIMs and response to use of WMD. Both fixed and mobile configurations of JWARN will integrate NBC sensors and provide automated operation.

3.1.2. Personnel. Readiness (AFS 3E9X1) and Bio Environmental (AFS 43B/4B0X1) Technicians will utilize JWARN to access and monitor the performance of the fixed and mobile NBC sensors on the airbase. Detection data will transfer automatically or with human intervention from the actual detector/sensors to C4I2 systems. Commanders will use the analyzed data to make decisions for disseminating warnings down to the lowest level of the battlefield. Operations, maintenance, and training workloads will increase. However, this increase will not require additional force structure/end strength.

3.1.3. Acquisition Objective. Acquisition objective/distribution will be as provided in Figure 2, below.

JWARN DISTRIBUTION MATRIX					
JWARN LOCATIONS	Purpose	# of Each	Per Function	Total	Notes
Air Force Operations Centers	Oper	2	1	2	C2 Functions Only
MAJCOM Command Centers	Oper	20	1	20	C2 Functions Only
Numbered Air Force Command Centers	Oper	20	1	20	C2 Functions Only
Tanker/Airlift Control Center	Oper	1	2	2	C2 Functions Only
High Threat Area	Oper	25	4	100	C2 Functions and Inplace Detector Network
Medium Threat Area	Oper	7	2	14	C2 Functions and Inplace Detector Network
Low/Non Threat Area Installation (OCONUS)	Oper	40	2	80	C2 Functions Only/Mobile Command Post System
Low/Non Threat Area Installation (CONUS)	Oper	100	2	200	C2 Functions Only/Mobile Command Post System
UTC 4F9E5/6	Oper	61	2	122	C2 Functions and Deployable Detector Network
UTC 4F9E7/8	Oper	76	1	76	C2 Functions and Deployable Detector Network
UTC 4F9D2	Oper	15	2	30	C2 Functions and Deployable Detector Network
UTC 4F9RH2	Oper	6	1	6	C2 Functions and Deployable Detector Network
INBCRS	Oper	79	1	79	C2 Functions and Detector Network of mounted sensors
Security Forces Group	Oper	2	2	4	C2 Functions and Deployable Detector Network
Readiness School	Tng	1	1	1	C2 Functions and Inplace and Deployable Detector Network
Bio Environmental School	Tng	1	1	1	C2 Functions and Inplace and Deployable Detector Network
Silver Flag Exercise Sites	Tng	3	3	9	C2 Functions and Inplace and Deployable Detector Network
RED HORSE Training Sites	Tng	3	3	9	C2 Functions and Inplace and Deployable Detector Network
AMC Warfare Center	Tng	1	2	2	C2 Functions and Inplace and Deployable Detector Network
Specialty Training Sites	Tng	5	1	5	C2 Functions and Inplace and Deployable Detector Network
				782	

Figure 2 – Air Force JWARN Distribution Matrix

3.2. Wartime Mission Profile/Employment. Readiness (AFS 3E9X1) and Bio Environmental (AFS 43B/4B0X1) Technicians will build and tailor NBC Analysis prior to increased readiness conditions. Upon increase in NBC activity they will operate the JWARN software within the NBC Cell to analyze, plot, and report NBC attack information up, down and laterally along commands structure. They will also use JWARN software to perform detailed briefings for commanders covering NBC warfare within the theater, AOR, and immediate area. Contamination persistency/intensity plots provide technicians with a definitive picture to match written guidance contained in ATP-45.

3.2.1. Deployment/Redeployment. Each Air Force installation in a High or Medium Threat Area requires a system, including interfaces (detector network) required to support networking of the detection/sensors systems existing on site, those planned through future acquisition programs and deployable assets (when employed). Deployable UTCs 4F9E5/6 and 4F9D2 will be provided one system consisting of the software (current version) and sufficient interfaces required to support networking of the detection/sensors systems existing on the UTC. When employed at a fixed site, the high/medium threat in place and deployable assets will be merged to create one detection network.

3.2.1. System Transportability. The JWARN system will be deployed on standard 463L pallet systems in selected unit type code (UTC) equipment packages as defined in Table 3-1. These UTCs provide personnel and equipment to support NBC capabilities in medium and high threat areas as defined by AFI 32-4001, Disaster Preparedness Planning and Operations.

4. Command and Control. Established command and control functions such as the Contingency Support Staff, Crisis Action Team, Battle Staff, Survival Recovery Center, and Unit control centers will be used to disseminate pertinent information internally to installation and externally to surrounding units and higher authorities.

5. Intelligence/National Agency/Space Support. Established intelligence sources will be used to determine threat response planning and execution.

6. Communications/Computer Systems Support. Established communications and computer networks will be used to support peacetime and wartime response.

7. Integration and Interoperability.

7.1. Integration with other systems. The JWARN will integrate with existing command and control systems and facilities. JWARN will maximize the use of existing command and control computers and other systems to prevent redundancy.

7.2. Interoperability. The JWARN will be applicable to all military and government organizations with a need for a quick, NBC analysis capability. It can be easily taught, deployed, and operated by U.S., NATO and other allied forces.

8. Security. Security operations and requirements will be outlined in the concept of operations.

9. Training. This section outlines the training strategy and the agencies' responsibilities to develop, conduct and sustain training and enable effective employment of the JWARN. Specific training requirements will be incorporated into the AFS 3E9X1 and AFS 43B/4B0X1 Career Field Education and Training Plan at the FY00 Utilization and Training Workshop. Training will be integrated into the appropriate portions of initial skills, upgrade, qualification, advanced, and proficiency training.

9.1 Initial skills training is AFS-specific training an individual receives upon entry into the Air Force or upon retraining into the 3E9X1 specialty for award of the 3-skill level. This training is conducted by Detachment 5, 366 Training Squadron at Ft Leonard Wood MO.

9.2. Upgrade training identifies the mandatory courses, task qualification requirements, and correspondence course completion requirements for award of the 5-, 7-, and 9-skill levels. This training is conducted at unit level and at CE SILVER FLAG training sites.

9.3. Qualification training is actual hands-on task performance training designed to qualify an airman in a specific duty position. This training program is provided at units where the JWARN is employed and occurs both during and after the upgrade training process. It is designed to provide the performance skills/knowledge required to do the job.

9.4. Advanced Training is a formal course which provides individuals who are qualified in one or more positions of their Air Force Specialty (AFS) with additional skills/knowledge to enhance their expertise in the career field and provide hands-on training for new equipment and employment concepts. Training is for selected career airmen at the advanced level of the AFS. This training is conducted by Detachment 5, 366 Training Squadron at Ft Leonard Wood MO or through mobile training teams.

9.5. Proficiency training is additional training, either in-residence, exportable advanced training courses, or on-the-job training, provided to personnel to increase their skills and knowledge beyond the minimum required for upgrade. This training is provided through embedded training programs, career development courses, qualifications training packages, and readiness training packages.

9.6 Responsibilities.

9.6.1. AF Civil Engineer Support Agency (AFCESA). The agency will develop the fielding plan and concept of operation; determine training requirements and solutions; develop training materials; provide policy guidance and procedures; include skill level training requirements in the 3E9X1 CFETP; and integrate JWARN fielding into peacetime and wartime plans.

9.6.2. AF Medical Operations Agency (AFMOA). AFMOA will provide fielding plan and concept of operation, training requirements with AFCESA.

9.6.3. AF Civil Engineer Readiness School (Det 5, 366 TRS). The school will incorporate JWARN training into the courses identified in the AF Annex to this plan and into the 3E951 Readiness Specialist Career Development Course.

9.6.4. Air Combat Command (ACC/CEX). ACC will develop training materials and include JWARN training into ACC and MAJCOM SILVER FLAG readiness training.

9.6.5. Operator Training.

9.6.5.1. New Equipment Training Strategy.

9.6.5.1.1. Instructor and Key Personnel Training (IKPT). IKPT is required at least twelve months prior to the initial system fielding. IKPT will train and certify Det 5, 366 TRS and SILVER FLAG instructors and key personnel at AFCESA, SILVER FLAG, specialty training sites, and using MAJCOMs. Sufficient lead-time (minimum of 12 months) is required for training specialists to develop and/or modify training course Plans of Instruction and for MAJCOM and AFCESA personnel to

incorporate system requirements into the AF and MAJCOM directives and manuals. Additional IKPT may be required for training of test participants.

9.6.5.1.2. New Equipment Training (NET). NET must be conducted by a face-to-face NET Team at each operational location identified in figure 2 the same time initial system fielding occurs. NET will provide training to at least three personnel at each operational location. The scope of training must include training that leads to system operator certification as well as integration of the system into the base operations plan or base support plan.

9.6.5.2. Training Enhancements.

9.6.5.2.1. Headquarters, Air Education and Training Command, through Det 5, 366 Training Squadron, Ft Leonard Wood MO., will develop and conduct instructional training on the operation, maintenance, and use of JWARN to Readiness Technicians (AFS 3E9X1). CE Officers will receive familiarization through the Readiness Flight Officer Course.

9.6.5.2.2. Headquarters, Air Force Civil Engineer Support Agency, Contingency Support Directorate (HQ AFCESA/CEX) will develop a readiness training package (RTP) and assist in the joint service development of an interactive multi-media training product.

9.6.5.2.3. SILVER FLAG and MAJCOM training sites will include JWARN into their curriculum.

9.6.5.2.4. CE Readiness Flights will conduct local training on the operation, maintenance, and use of the JWARN. Readiness Flights will use the JWARN RTP to instruct personnel. Additional duty personnel augmenting the Readiness Flight (shelter, contamination control, support teams) may also be trained to operate the JWARN. The joint service multi-media product will compliment training and proficiency evaluation.

10. Logistics.

10.1. Provisioning. Provisioning actions for JWARN will be accomplished by the lead service for the JWARN program (in cooperation with Air Force Logistics) maximizing jointness and single item management.

10.2. Maintenance. JWARN has a two-level maintenance concept; Organizational Level and Depot Level.

10.2.1. Maintenance, repair, and reconstitution tasks will be accomplished at the organizational level, either in garrison or in the field. Repair and/or replacement of parts will also be accomplished by using unit checks, cleaning of sensor/electrical ports, fluids (if required) servicing, changing batteries, and light bulb replacement should be performed at this level. Periodic inspections and preventive maintenance tasks will be acceptable to ensure operational status/availability. Maintenance tasks and schedules will be identified in the LSA. Removal of Line Replaceable Units (LRU) will be required upon notification

of LRU failure and will be shipped to the depot if LSA determines items require depot level support. Test Measurement Diagnostic Evaluation (TMDE) will only be required when built-in-test (BIT) indicates system failures.

10.2.2. Depot Level Maintenance is repair beyond the organizational level maintenance capability. The Service lead for depot support will be the depot level support agency.

10.2.3. Calibration. If calibration is required, the component or LRU will be sent to depot for calibration.

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